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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,555	07/25/2003	Nicolas Eches	CELA:104	9329
27890 7590 10/13/2009 STEPTOE & JOHNSON LLP 1330 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036				
EXAMINER				
CHAMBERS, TROY				
ART UNIT		PAPER NUMBER		
3641				
MAIL DATE		DELIVERY MODE		
10/13/2009		PAPER		

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RECORD OF ORAL HEARING

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

*Ex parte* NICOLAS ECHES and JEAN-PAUL FAUCHON

Appeal 2009-002937  
Application 10/626,555  
Technology Center 3600

Oral Hearing Held: September 15, 2009

Before WILLIAM F. PATE, III, STEFAN STAIKOVICI and KEN B. BARRETT, *Administrative Patent Judges*.

ON BEHALF OF THE APPELLANT:

SETH A. WATKINS, PH. D., ESQUIRE  
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The above-entitled matter came on for hearing on Wednesday, September 15, 2009, commencing at 9:20 a.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Christine L. Loeser, Notary Public.

PROCEEDINGS

JUDGE PATE: We have had a chance to look at this case beforehand and we are up to speed on the technology. We would like to hear your arguments about patentability.

MR. WATKINS: Good morning. May it please the members of the Board. Just to confirm, this is the Application number 10/626,555.

JUDGE PATE: Looks good.

MR. WATKINS: The subject matter is anti-tank ammunition, in particular, an aerodynamic projectile.

I would like to start out with just a very brief review of the three references that are the subject of the appeal.

The first reference is Bisping. Bisping has a front thrust plate and rear fins so it is supported in two locations.

The point of Bisping, as taught in the specification, is to maximize the gap between the thrust plate and the fins, the idea being that you get a maximum propulsive charge in that gap so that you can really shoot the projectile. The second reference is Sippel. Sippel teaches a forward radial support and a mid-radial support. Sippel repeatedly discusses the importance of minimizing the weight. The less weight you have, the better your projectile should work. That's what Sippel teaches us.

Finally, Wilkerson again is supported at two points. The entire point of this reference is a double ramped sabot, two points.

So what has happened in this case is that the Examiner has superimposed one reference on top of another and made a very, very simple

1 mechanical analogy that, oh, wouldn't it be straightforward to just take a  
2 reference that has support at the front and back and a reference that has  
3 support at the front and the middle, A plus B, A plus C should yield A plus  
4 B plus C. This logic does not prevail in aerodynamics. It certainly doesn't  
5 prevail in designing a missile or an anti-tank ammunition, and I would like  
6 to explain why during this argument.

7 First, I would start with page 7 of the Office Action, just to deal with  
8 some problems with the logic right away.

9 JUDGE PATE: You are talking about page 7 of the Examiner's  
10 Answer?

11 MR. WATKINS: Of the Examiner's Answer, yes, thank you.

12 So on page 7 at the bottom, the Examiner has a statement, Bisping  
13 discloses a finned, sub-caliber projectile that addresses the lack of precision  
14 due to firing projectiles such as that disclosed by Sippel.

15 Bisping discloses something that addresses something that Sippel  
16 lacks. This doesn't make any sense because Bisping is dated and issued in  
17 the '80s whereas Sippel is circa the '90s so the dates are completely  
18 backwards here. You wouldn't look in Bisping to what Sippel did because  
19 Sippel came a decade later so the logic of the Office Action falls flat right  
20 away.

21 The next sentence, according to Bisping, prior art projectiles such as  
22 the one disclosed by Sippel are inaccurate.

23 The same problem occurs. It's not that Sippel is disclosing something  
24 that helps in a new design in Bisping. It's the other way around, but they are  
25 both again supported at two points.

1           So there's something wrong with the timing set forth in the Office  
2 Action. That's the first easy point. It's a threshold matter in this case.

3           Second point, why would you add the forward support that you have  
4 in the reference that is Sippel to Bisping? I want to look at the picture in  
5 Bisping on the cover for a moment because it's very instructive.

6           There is a thrust plate at the front, you know, the front of this device,  
7 because you have a tip. The tip is at the top and the thrust plate is just below  
8 the top toward the front of the casing.

9           Then there are these rear fins and there is an open area between the  
10 rear fins and the front plate so that you can get this propulsive charge packed  
11 inside. Bisping is already supported in two locations. So there is a  
12 fundamental problem with armaments like this, and the fundamental  
13 problem is you want to stabilize the armament in the casing so that when it  
14 fires, it doesn't wobble.

15           The wobbling problem was already dealt with in Bisping. So why  
16 would these inventors go backwards? The whole idea in the design of  
17 munitions is lower the weight, lower the drag, keep the aerodynamics  
18 proper, don't have a lot of friction and allow uniform pressure.

19           There's an odd argument that is made in the Examiner's Brief and the  
20 odd argument is, well, it would make sense to have these three supports in  
21 the Applicant's specification because when you have the three supports, you  
22 get better uniform pressure.

23           This makes absolutely no sense at all because the pressure disappears  
24 once this forward plate that you see in Bisping leaves the muzzle. As soon

1 as it's outside the tube, the pressure plate has already done its job and there  
2 isn't pressure being applied within the tube anymore.

3 So I think the logic fails in the Examiner's Office Action and in the  
4 Examiner's Brief because there is no reason to modify Bisping at all.  
5 Bisping doesn't provide any hint of a reason why you would want to modify  
6 it. It's already, from Bisping's perspective, optimized.

7 JUDGE BARRETT: Isn't the Examiner modifying Sippel?

8 MR. WATKINS: Well, the Examiner is, you are right, but the  
9 Examiner's logic is a little bit, it's somewhat backwards. Let's try that logic.  
10 So Sippel has a forward support and a mid-support. The instant that the  
11 mid-support leaves the nozzle, the pressure is gone. And there's nothing  
12 more needed to stabilize because it has already got its trajectory. It's  
13 moving.

14 Why would you add yet another fin, as the Examiner alleges you  
15 should do by combining these two references, if you have already got all of  
16 your pressure out and the pressure plate has done its job and it's moved  
17 beyond the front of the muzzle. It doesn't make any sense to me.

18 JUDGE BARRETT: Isn't Bisping concerned with the consistency of  
19 pressure before it leaves the muzzle?

20 MR. WATKINS: It is, but that's the pressure plate, and all of these  
21 designs have this pressure plate and are all concerned with the uniformity of  
22 the pressure before it leaves the muzzle.

23 So what you really want is to make sure that you have got stability  
24 within the casing and that's it and you only need to have support at two  
25 points to get that stability.

1           Bisping already optimized it. All Sippel does is add yet one more  
2     support that would interrupt what Bisping tells us not to do. Bisping says  
3     have a maximum-sized gap between your front support and your rear fins.  
4     If you add Sippel, you are doing exactly what Bisping tells you, teaches you  
5     not to do, and I can give you a citation in the specification to column 4, lines  
6     47 to 54 in Bisping specifically says maximize the gap.

7           So if you add Sippel and now have this midpoint of support, you have  
8     got a third support that adds weight, you have got a third support that is  
9     going to add drag and friction and you have gone against what Bisping has  
10    taught you to do.

11          You have also gone against what Sippel teaches you to do because  
12    Sippel says keep the mass as minimum as possible. That is why all of these  
13    are designed as dual supports, not supported in three locations, unlike  
14    Applicant's.

15          So the third support would do little to improve the guidance in the  
16    barrel, and that's what the references are directed to. You already have two  
17    supports so it's already stable and so why would the skilled artisan look at  
18    the optimized design of Bisping and say, I want to add weight to it, I want to  
19    add more friction to it, and I want to modify it and add a third fin at a  
20    midpoint so I have front, middle and rear support.

21          A skilled artisan wouldn't have done that. It runs counter to what  
22    these references teach. So the problem that has occurred here, I think, is that  
23    the Examiner has done what in a superficial way makes sense.

24          You superimpose one figure on top of the other and all of a sudden,  
25    you have the mechanical construction of support in three locations. You

1 read the claim and you have got support in three locations, but the skilled  
2 artisan would never do that, looking at either Bisping or Sippel, nor would  
3 the skilled artisan do that with Wilkerson because Wilkerson, again, is a dual  
4 support.

5 The whole idea is you only need support in two locations so that you  
6 have got stability inside this tube.

7 So it would really be our position that what the Examiner has done is  
8 taken a superficial review of the two figures and used, unfortunately,  
9 hindsight reconstruction based on the specification of the Applicant which  
10 teaches use three and made this leap of faith that the aerodynamics would  
11 work out. I'm a Ph.D. mechanical engineer and I wouldn't just take a leap of  
12 faith on aerodynamics. You don't just add a fin just because you think it's a  
13 good idea. There's got to be some reason to do it.

14 And these references don't give any reasons why to add a third  
15 support. It will change the aerodynamics, it will change the behavior of a  
16 projectile. It is a projectile that is being aimed at a tank so you certainly  
17 want it to be accurate.

18 JUDGE BARRETT: Is that aerodynamics argument found in your  
19 brief anywhere?

20 MR. WATKINS: Go to the brief. I think it's just simply made in the  
21 -- there's no alleged suggestion or motivation at all from the references.  
22 I also note that this was a pre-KSR situation so the analysis was a little bit  
23 more directed at that very specific test, but I still believe under KSR, that  
24 there's no obviousness here.



1           The level of sophistication in this technology is tremendously high  
2   and to just take this leap of faith of adding structure from one highly  
3   sophisticated aerodynamic design that uses support in two places to another  
4   highly  
5   sophisticated aerodynamic design that came to the same conclusion, support  
6   in two places, and all of a sudden say, Let's use a third one.

7           What's the third support going to do? You don't know. Is it going to  
8   cause this to spin? Is it going to cause it to wobble? Are you going to get  
9   wobble inside the tube or are you going to get wobble during the flight of the  
10   projectile? You don't know.

11          So you would have to have some reason from these references to want  
12   to make that combination, to bring them together. There is no suggestion to  
13   be supporting either of these structures, Sippel or Bisbing, with more than  
14   two. That's the problem. If we had a hint of it, if there was a thought that,  
15   well, it makes sense to have at least two supports because the more supports  
16   you have, the more stability you have in the tube before it's launched, then  
17   the argument might be different but there is not even a hint of that logic.

18          So you are correct that the Brief doesn't go into very great detail on  
19   this exact rationale of the aerodynamics would change, but I'm looking for  
20   the motivation to be able to combine these.

21          KSR at the least teaches us that there has got to be a good articulation  
22   in the Office Action or the Appeal Brief from the Examiner as to why you  
23   would make the combination and I don't find that articulation at all.  
24   What the Examiner focuses on is that you want this uniform pressure. That's  
25   the Examiner's argument.

1           You get the uniform pressure until the pressure plate leaves tube and  
2 then it's gone. It's been launched. If some of the projectile is still left in the  
3 tube for an instant, unsupported, that's beside the point. The pressure is  
4 gone.

5           So the argument, the one argument that the Examiner makes about  
6 uniform pressure really doesn't make any sense. It just doesn't, it doesn't  
7 hold water. I think the easy way to summarize the failing of the combination  
8 is that there is some wisdom in Bisping. Bisping really does teach support at  
9 the front, support at the back and so you have this stability.

10          Why would you go against that wisdom as this Applicant has done?  
11 There is no motivation to do it, there is no teaching to do it. It wouldn't be  
12 obvious to try. Why would somebody want to change the stability of  
13 something that is already stable and risk making it unstable, risk changing all  
14 the aerodynamics. This is not a simple industry at all.

15          And so I think the arguments are fairly straightforward here. The  
16 biggest problem is that there isn't a good articulation in the Examiner's  
17 arguments as to why a skilled artisan would make this combination at all.  
18 There's illogic in the combination of the dates. They have been reversed. If  
19 we get rid of that technicality and just say, all right, would one look to both  
20 these references, superimpose the figures on each other, would that be good  
21 enough?

22          Nobody in this industry is just going to superimpose those two  
23 figures, not when you are firing a missile. It just doesn't work that way.  
24 There's a lot of sophistication to this, and there is no articulation in the  
25 Examiner's arguments as to why you would do it.

1 I think that's the -- the central argument is pretty straightforward. I  
2 understand that in the basic mechanical case, it sort of is an easy thing to do,  
3 to take two figures and to say component A and component B are here,  
4 component A and component C are here, we put them together and it looks  
5 perfect. This is impermissible hindsight.

6 This is taking the figure that is in the Applicant's Specification and  
7 going backwards with it. In fact, Applicants even presented the prior art in  
8 figures 1 and 2 of the Application, showing support at the front, support at  
9 the middle and then support at the front, support at the rear.

10 So the combination was there. The Examiner in my mind didn't even  
11 really need to go to these references if that was the rejection that he was  
12 going to give. There's admitted prior art here.

13 But the admitted prior art doesn't really make any sense because to  
14 these Applicants, who are sophisticated in design of projectiles, you would  
15 not combine those two prior art designs. It goes counter to the very  
16 statements that are made in Sippel and Bisping, particularly in Bisping, but  
17 Sippel teaches away from adding any weight. If you add any support, you  
18 are adding weight.

19 What other questions can I answer? I think it's a very straightforward  
20 case.

21 JUDGE PATE: We have no more questions for you so we will take  
22 this case under advisement.

23 MR. WATKINS: Thank you.

24 (Whereupon, the proceedings, at 9:37 a.m., were concluded.)